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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,028	12/28/2001	Richard E. Smalley	21753-012014	1029
26201	7590	05/13/2008		
FISH & RICHARDSON P.C. P.O BOX 1022 Minneapolis, MN 55440-1022			EXAMINER HENDRICKSON, STUART L	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			05/13/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/033,028

**Applicant(s)**

SMALLEY ET AL.

**Examiner**

Stuart Hendrickson

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/13/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 164, 166, 170-174 and 196-229 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 164, 166, 170-174 and 196-229 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 164, 166, 170-174, 196-229 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is not adequate disclosure of 'devices'; the specification particularly pages 43, 49, 50, 52, 57, 59 are speculative and broad-brushed. It appears that much which is old and known about these devices is heavily relied upon to support their disclosure. Further, the specification is written from the perspective of novelty in the nanotubes, and a discussion of what they could be used for. However for a claim such as 166, it is not explained what element is removed and replaced with nanotubes, or how they are placed within an otherwise known apparatus. In claim 164, it is not explained the exact function of a 'quantum device' (let alone any structure)- rather, that term appears to encompass other concepts.

Claims 164, 166, 170-174, 196-229 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are inconsistent because they recite a 'device' in the preamble, yet no corresponding structure in the claims. Thus, the scope is unclear.

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Claims 164, 166, 170-174, 199-220 are rejected under 35 U.S.C. 102(a) and (b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kiang et al. J. Phys. Chem.

The reference teaches on pg. 3750 cut nanotubes. SWNTs are depicted, however the discussion is general. In so far as claims 173, 174 require anything beyond nanotubes, then using SWNTs in a battery/fuel cell is an obvious expedient to exploit their electrical properties.

Claims 170-174, 196-198, 206-229 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang et al.

The reference, supra, does not teach a battery/fuel cell/device, however using the nanotubes in these devices is an obvious expedient to exploit their well-characterized properties alluded to in col. 1.

Applicant's arguments filed 2/13/08 have been fully considered but they are not persuasive. The arguments are primarily concerned with the term 'device', however the claims are not clearly drawn to actual devices. Rather, the term 'device' appears to be a statement of intended use, and thus of 'little' weight in a product claim which recites only nanotubes. The applicant is reminded of the statement in the rejection of 10/17/06 that 'Claim 164 does not require ... be restricted'. It is not clear why the product of Kiang does not have conductors, since it has nanotubes. Concerning the uniformity of the size, if cut when bundled, then it would be expected that they would be cut at the same place and thus have similar lengths.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (571) 272-1351.

/Stuart Hendrickson/  
examiner Art Unit 1793